

EESAT 2002 Session Topics & Authors

APRIL 15-17, 2002

San Francisco, CA

Monday, April 15, 2002

8:30 am - 9:00 am

Welcoming Remarks

Dr. Imre Gyuk, DOE; Dr. Philip Symons, ESA

Keynote Address

Dr Robert Dixon, US Dept. of Energy

9:00 am - 10:30 am

Overview of Electrical Energy Storage Applications & Technologies

Chair: John Boyes

Technical and Market Aspects of Innovative Storage Opportunities

Joe Iannucci, Distributed Utility Associates

Characteristics of Energy Storage Technologies for Short- and Long-Duration Applications

Susan M. Schoenung, Longitude 122 West, Inc.

Comparison of Energy Storage and Electric Conversion for Bridging Power Applications

Tom Key, PEAC

10:30 am - 11:45 am

Multi-Megawatt Applications

Chair: Joe Hoagland and Anthony Price

System Justification and Vendor Selection for the Golden Valley BESS

Tim DeVries, Golden Valley

Vanadium Redox-flow Battery for Voltage Sag

Tsuyoshi Shinzato, Sumitomo

CAES for Today's Market

Septimus van der Linden, Alstom

12:30 pm - 1:30 pm

Keynote Speaker

Terry Surles, Calif. Energy Comm.

1:30 pm - 3:00 pm

Advanced Battery Applications

Chair: Jim McDowall and Ali Nourai

Battery Energy Storage (ZnBr) for Grid Support Applications

Vince Scaini, Thomas Rhae, Peter Lex, SatCon Power, Detroit Edison, ZBB

A Vanadium Energy Storage System Field Trial

John Hawkins, Vantack

Market Development for the Sodium Sulfur Battery

David K. Nichols, AEP, TEPCO

3:00 pm - 4:40 pm

Power Electronics & Conversion Systems

Chair: Herb Hayden and Phil Symons

Using Advanced Power Electronics to Develop a 2200kVA Rotary Flywheel UPS

Gene Weaver, SatCon

An Optically Isolated, HV-IGBT Based, Mega-Watt Cascade Inverter Building Block for DER Applications

Paul Grems Duncan, Airak, Inc.

Development of Novel Power Electronic Topologies for the Integration of Battery Energy Storage in FACTS Devices

Mariesa Crow, University of Missouri

The Gen-3 Emitter Turn-Off Thyristor

Bin Zhang, Virginia Tech

Tuesday, April 16, 2002

8:30 am - 10:15 am

Design and System Studies

Chair: G. Thijssen and Mike Hoffman

Using Energy Storage with Wind Energy for Arbitrage

Robert Taylor, TVA

Energy Storage/Distributed Resource Options at the University of Maryland

Mindi Farber De Anda, Ndeye Fall, Energetics

The Advent of Energy Storage for Transmission Voltage Stability Support via
Superconducting Magnetic Energy Storage (SMES) and UltraCAPacitors (UCAP)
Dale Bradshaw, TVA

Pre-Conceptual Design of the Boulder City Battery Energy Storage Demonstration
Project
Larry Stoddard, Black & Veatch

10:30 am - 11:45 am

Flywheel Applications
Chair: Fred Schwartz and Les Fairchild

Investigation of the Stability of a 600 MJ Energy Storage System Based on Paralleled
Flywheel Generators
Heiko Cordt, Piller GmbH

Introducing Pentadyne Power Flywheel Energy Storage System
David Townley, Pentadyne Power

CleanSource2 Battery-Free Energy Storage Theory of Operation
Scott Richey, Active Power

12:45 pm - 3:00 pm

Capacitor and Super Capacitor Development and Applications
Chair: Tom Key

High Energy Density Capacitor Storage System
Michio Okamura, Okamura Lab.

A Boost Life & Reliability Power Capacitor: Theory, Analysis, Design and Experiments
Tauqeer H. Shah, Iran University of Science & Technology

Energy Feeding with Sequential Storage: Properties of the Fast Energy Transfer Between
Supercapacitive Banks
Alfred Rufer, Ecole Polytechnique Fédérale de Lausanne

Applications for Short-Term Energy Storage Using Ultracapacitors
Mike Howard, PEAC

Extending DER Transient Loadability Using Electrochemical Capacitors
Satish Ranade, NMSU

Wednesday, April 17, 2002

8:35 am - 10:40 am

High Speed Flywheel Development
Chair: Imre Gyuk and Nancy Clark

Flywheel Technology Development at the NASA Glenn Research Center
Rob Wagner, University of Toledo

Flywheels with All-Passive, Non-Contact Magnetic Suspensions
Arthur Day, Boeing

DC Power Management with a High Performance Flywheel
Donald Bender, AFS Trinity

Composite Flywheels for Energy Storage - Design Considerations
R. Hebner, University of Texas at Austin

A Description of the Beacon Power High Energy and High Power Composite Flywheel
Energy Storage Systems
Matt Lazarewicz, Beacon Power Corp.

10:55 am - 12:10 pm

Battery Development and Applications
Chair: George Hunt

Reliability of Valve-Regulated Lead-Acid Batteries for Stationary Applications
Mindi Farber De Anda, Jennifer Miller, Energetics, Inc.

High Power Storage Technologies for Distributed Generation
Jim McDowall, SAFT

Introducing Cerium Based High Energy Redox Batteries
Stephen Clarke, Plurion Systems, Inc.

1:10 pm - 2:25 pm

Multi-Mega Watt Applications
Chair: Steve Eckroad and Ben Norris

High Charge and Discharge Cycle Durability of the Sodium Sulfur (NAS) Battery
Makoto Kamibayashi, Kazuhito Furuta, TEPCO, NGK

A Comparative Assessment of Flow Battery Technologies

Chris Lotspeich, Second Hill Group

Determination of Commercial Viability of Flow Batteries
H. Kroon and G. Thijssen, REMU and KEMA TDC

2:40 pm - 3:55 pm

Closing Session
Chair: Imre Gyuk

Energy Storage For Ancillary Services
Robert E. Taylor, TVA

The Certs Microgrid
Abbas Akhil, Sandia National Laboratories

What Value Does Energy Storage Have?
Phil Symons, EECI